

# Notice of Allowability

Application No.

09/530,968

Examiner

Audrey Y. Chang

Applicant(s)

GROSSETIE ET AL.

Art Unit

2872

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to request for continuation examination on March 16, 2007.
2. ☒ The allowed claim(s) is/are 1, 3-4, 6-14, 16, 18-26, (renumbered as 1-22).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## REASONS FOR ALLOWANCE

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 16, 2007 has been entered.
2. This Office Action is also in response to applicant's amendment filed on March 16, 2007, which has been entered into the file.
3. By this amendment, the applicant has amended claims 1, 3, 14 and 16 and has canceled claims 2, 5, 15 and 17.
4. Claims 1, 3-4, 6-14, 16, and 18-22 remain pending in this application.

### *Examiner's Amendment*

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Benjamin E. Urcia (Reg. No. 33,805) on May 23, 2007.

The application has been amended as follows:

In the claims,

In claim 10, line 3, deletes "1 to 9" and insert --1, 3, 4, and 6 to 9--,

In claim 22, line 3, delete "14 to 21" and insert --14, 16, and 18 to 21--.

***Reasons For Allowance***

6. The following is an examiner's statement of reasons for allowance: of the prior art references considered none has disclosed a *method* and *system* for producing a *hologram* from a virtual object defined in a three-dimensional geometric space, wherein the method comprises the **step** of computing a set of two-dimensional images representing the object. The step of computing the set of two dimensional images further comprises the *step* of *defining a first geometrical plane* in the three dimensional geometric space and *separated* from the object, *step* of defining a matrix of points in the first geometrical plane such that each of the points representing *one of different viewpoints*, and *step* of defining a *second geometrical plane* parallel to the first plane and *located between the object and the first geometric plane*, and computing the set of two-dimensional images corresponds to the **projected images** of the object **on the second geometric plane** as respectively viewed from each points from the matrix of points or of said viewpoints on the first plane. The method further comprises the step of computing a set of elementary holograms each corresponding to one of said two-dimensional images. Each of the two dimensional images is defined by a real function ( $f_{mn}(Y,Z)$ ) representing the intensity field of the image on the second geometric plane having coordinates (Y,Z). The method further comprises the steps of converting the real function into a complex function therefore form complex image, oversampling the complex image, computing diffracted image by simulating the illumination of an optical wave (DIF) on the complex image, calculating an interference field by adding the diffracted image with a complex field representing a reference optical wave (REF) and the step of extracting amplitude values from the calculated interference field to produce the hologram associated with said given two-dimensional image, as explicitly stated in claims 1 and 14.

The prior art references **US patents issued to Kato et al (PN. 5,852,504) and Saito et al (PN. 5,668,648) and cited technical paper by Michelin et al (SPIE, Vol. 2176 Practical Holography VIII (1994)) do not teach** that the set of the two dimensional images representing the object is obtained by

Art Unit: 2872

defining a first geometric plane separated from the object with a matrix of points, each representing a viewpoints, and a second geometric plane located **between** the first geometric plane and the object such that set of two dimensional images are the projected images of the object on the second geometric plane respectively seen from the matrix of viewpoints in the first geometric plane.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Contact Information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

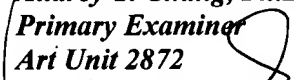
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 09/530,968

Art Unit: 2872

Page 5

**Audrey Y. Chang, Ph.D.**  
**Primary Examiner**  
**Art Unit 2872**



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